

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in or relating to Paste-dispensing and Spreading Devices

I, HUGH RENWICK MACMICHAEL, a citizen of the United States of America, of 572, Blair Avenue, Piedmont, County of Alameda, State of California, United States of America, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

10 This invention relates to a dauber adapted for use in combination with a collapsible tube container for paste such as used in the shining of shoes and other like uses.

15 Daubers as hitherto provided are formed generally with bristle brush, felt or cloth, into the body of each of which the paste readily penetrates with resultant waste and soiling. A boot-black therefore, will frequently use his fingers directly as a dauber for spreading the paste, and in this they appear unexcelled although getting badly soiled.

20 An object of my invention is to provide a dauber adaptable for use with a collapsible tube container and having the advantageous characteristics of the fingers as a spreader of paste, with a provision also for effectively applying the paste into the shoe sole-to-upper crevice, all without waste or soiling of the hand of the user, and in a cheap device discardable with each exhausted container.

35 Another object of my invention is to provide a dauber with the aforesaid characteristics that will furnish satisfactory life and service when used with a paste containing solvent such as turpentine commonly present in the better shoe polishes, and which has a swelling and destructive effect on rubber and especially sponge rubber when contacting in sufficient quantity therewith.

45 Another object is to provide a cap adapted to enclose the dauber mounted on the container, while sealing off and ventilating out the volatile vapor from said solvent.

50 According to the invention there is provided a paste dispensing and spreading device comprising a dauber attached to a container and having soft pliant top and side surfaces with a backing of a resilient

flexible material similar to live sponge rubber and also having a tubular passage through which paste is dispensed, the top surface and the wall around said passage being substantially non-penetrable to the paste. 55

The invention also resides in a paste dispensing and spreading device comprising a dauber having a body of resilient flexible material similar to live sponge rubber and of sufficient width to provide a peripheral applicator wall, said body having an applicator face formed by a flexible, substantially inelastic fabric attached to the top surface thereof and also having a longitudinal perforation therethrough opening into an outlet passage in a container to which the base end of said body is attached, the applicator face forming the top surface of the dauber is substantially non-penetrable to the paste. 60 65 70 75

The applicator face preferably has a substantially continuous, preferably slightly roughened, highly pliant flexible surface. In its paste spreading effect, it resembles that produced by the skin of the boot-black's finger, and likewise, it is substantially non-penetrable and non-wasteful in respect to its ability freely to deposit substantially all of the dispensed paste. Said face may be formed of one of several very pliant materials. For instance, very pliant rubber, preferably slightly roughened by having it molded against a removable cloth, provides a satisfactory dauber face for some pastes. 80 85 90

Surrounding and underlying the periphery of said face, I provide a substantially - continuous wall adapted to cooperate in spreading paste into the sole-to-upper shoe crevice. This wall functions best with a high degree of flexible pliancy. 95

Carrying said face and peripheral wall is the body of the dauber having highly pliant compressible and resilient characteristics, providing for the application of a yielding pressure adaptably on the irregular curved surface of a shoe. In use, it is preferably substantially resistant to the penetration of paste. 100 105

In order that the invention may be

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clearly understood and readily carried into effect, the same will now be described more fully with reference to the accompanying drawings, in which:

5 Figure 1 is a cross-sectional elevation of a dauber on a container with a closure cap;

Figure 2 is a plan partly of said cap and partly of said dauber;

10 Figure 3 is a cross-sectional and perspective view of a modified design of the dauber (supporting container not being shown) provided with reinforcing fabric;

15 Figure 4 is a cross-sectional and perspective view showing the mounted dauber in another mode having a face attached;

Figure 5 is a greatly enlarged fragmentary cross-section of one form of the dauber face showing entrained paste thereon;

Figure 6 is similar to Figure 5, but showing only paste encased in the surface depressions;

25 Figure 7, similar to Figure 6, shows the encased paste partially wiped out of the depressions by rubbing to the right; and

Figure 8, similar to Figure 7, indicated substantial freedom from paste following additional rubbing to the left.

Referring to the drawings (see Figs. 1 and 2) a collapsible container 11 is formed with the top disk 12 provided with the outlet tube 13 and the surrounding threaded part 14 adapted to engage with the threaded closure cap 15, the latter having the projecting seat 16 for sealing contact against said outlet tube 13, and the holes 17 for ventilating the enclosed chamber 18.

Mounted on said top 12, surrounding said outlet tube 13 and the perforation 19 is the freely and substantially projecting dauber 20 provided with a pliant, preferably slightly roughened, substantially non-penetrable face 21; the pliant, preferably roughened peripheral wall 22; the pliant, preferably non-penetrable and smooth perforation wall 23; all being yieldably supported by the pliant compressible resilient body 24. Said face 21 may be provided with a roughness corresponding to the imprint produced by molding rubber against a cloth having twenty-eight firmly-twisted threads per inch. Said body 24 may be formed of a very fine-celled sponge rubber, a sample of which, three-eighths inch thick may be easily compressed between the fingers to less than one-half its free thickness. Said sponge rubber may be exposed for said peripheral wall 22.

In a modified design (see Fig. 3) I may use a fabric 28 having an open square

mesh of about eight threads per inch, said fabric 28 underlying said face 21 and overlying said body 24, joined with both the latter for their reinforcement against lateral swelling which might otherwise be caused by the effect of shoe paste solvent such as turpentine.

A dauber constructed in somewhat different form is shown in Figure 4, where the projecting dauber 30 is preferably cemented to the container 31 provided with the projecting tubular outlet 33 providing a non-penetrable tubular lining for most of the height of the hole 34 extending through said dauber 30. The dauber body 35 is made preferably of pliant resilient highly compressible material for which sponge rubber may be used, the peripheral wall 32 of exposed cellular sponge rubber forming a roughened highly compressible applicator wall part of the dauber. Attached on the outer end of said body 35 is a face 36 which may be made of thin flexible material preferably inelastic and substantially non-penetrable to a paste, wherefor I have found certain imitation leather fabrics such as may be found on note book covers to serve well and to present the desired slightly roughened surface. As illustrated in Figures 1 and 4, the container projecting outlet tubes 13 and 33 respectively may form the non-penetrable protective tubular linings extending up through almost the height of the hole through the dauber, and irrespective of the type of dauber face construction, the flexible non-penetrable wall 23 may be optional as to its use.

The dauber 20 (Figs. 1, 2 and 3) may be formed using thin pliant rubber tubing for the perforation wall 23, the face 21 may be stamped out of thin pliant sheet, rubber or other material, preferably having a slightly roughened top surface, the body 22 may be formed from fine-celled sponge rubber, and the aforesaid parts cemented together with flexible rubber cement, having first inserted the fabric reinforcement 28 when making the modified form of Figure 3.

Alternatively from the aforesaid and more economically, the daubers of Figures 1, 2 and 3 may be formed in a mold having an area for a considerable number of daubers, and a depth for two daubers. Said mold would be provided with spaced cores registering with the perforations 19. The surface 21 would position against the top and the bottom of said mold, and the molded sheets would be sliced horizontally through the middle, and thereafter from each resultant sheet, the individual daubers would be cut or stamped out.

If said daubers are made entirely of rubber and in the form of Figures 1 and 2, the mold may be charged with a rubber composition adapted when vulcanized, to form the thin solid surfaces 21 and 23 against said mold surfaces, and simultaneously to form the cellular sponge-like structure of the body 20 which does not contact against said mold surfaces.

If the face 21 is to be formed of thin pliant material other than rubber, a sheet thereof having the perforations 19 may be placed against the top and the bottom of the cored mold, and the intervening space filled with material adapted to form the resilient compressible body 24. The tubular walls 19 may be formed of short pieces of tubing placed on said mold cores, or said walls may be formed by a rubber composition as aforesaid in conjunction with said body 24.

The dauber of Figure 3 may be formed in general by any of the preceding methods modified by inserting the mesh fabric 28 at a suitable step in the manufacturing process described. For instance, if the dauber is molded from aforesaid rubber composition, a very thin layer of suitable composition may first be spread over the bottom of the mold. The fabric 28 may then be put thereon, and the body material then placed of a thickness for two daubers. The upper fabric 28 may then be placed and finally the top face material spread in the mold, and the mold top be put on and secured, ready for the vulcanizing process.

In using a face 21 formed of a hardening plastic material such as used in imitation leathers, a suitable fabric 28 may be first molded therewith. The resultant combination sheet 21 and 28 with spaced perforations 19 therein may then be used in the top and the bottom of a mold for a two-dauber thickness, and the manufacturing process carried out otherwise similar to that already described.

Any of the aforesaid or other methods of manufacture may be used by those skilled in the art.

Figures 5, 6, 7 and 8 illustrate on a greatly enlarged scale how paste may be entrained on one form 41 of the roughened face 21 and its free or non-wasteful detrainment therefrom as the dauber is manipulated. In Figure 5 a dauber face 41 is shown with the roughened depressions 42 encased by the left walls 43, the right walls 44, generally bottomed at 45 and provided with a full load of entrained paste 48. In Figure 6 is shown the encased paste 49 remaining in the depressions 42 after most of said paste 48 has been dispensed.

In Figure 7, the face 41 is shown with

the left walls 43 generally flattened and exposed so that paste may be wiped out of the left side of the depression 42 by a rubbing movement of the dauber 41 to the right. In like manner Figure 8 shows the depression 42 flattened to expose the right wall 44 thereof to a flattening and wiping out as the dauber face is rubbed to the left.

The foregoing for purpose of explanation, relates to a back and forth rubbing motion on one directional line only, but it will be understood that such rubbing generally will take place in an irregular way in various directions.

It is intended to make obvious from the diagrams of Figures 5, 6, 7 and 8 and the foregoing explanation thereof, how the appreciably-roughened dauber having a highly flexible surface material is enabled to entrain paste and thereafter by rubbing motions against a shoe, to dispense substantially all of its entrained paste free of appreciable waste by unavailable residual paste adhering to or being retained in the dauber. On the other hand, where the dauber is made with a face having a very low degree of roughness more closely resembling only the pore-like roughness of the finger skin, the paste penetrating into and encased by said pore-like spaces may be only a negligible amount. The before described flexing action of the walls of the depressions or pores then approaches a corresponding negligible degree.

In principle, for the larger dauber face depressions surrounded by the more protruding walls (or the like), a great degree of flexibility is essential in said walls in order that they may adequately flex over and provide for the non-wasteful dispensing of the paste entrained thereby. As the size of the roughening depressions approaches the previously described minimum, the necessity for flexing of said walls thereof approaches the vanishing point, but the requirement remains of a pliant face adapted in general to conform to the irregular surface of the shoe in contact with the dauber. Therefore the pliancy and flexibility of the dauber face is to be correlated (a) with the form of the roughening depressions therein adapting it to non-wasteful dispensing of paste, and (b) with the forms of the curved surfaces of a shoe adapting it to spread paste easily and effectively thereon.

Avoiding on the one hand a smooth rubber-like surface such as that of the squeegee adapted mainly to wipe another surface clean of fluid or paste, and on the other hand, avoiding a deeply-depressed comparatively inflexible surface which

would wastefully retain paste, a considerable degree of variation may be made in said correlated roughened and pliant characteristics of the face of my dauber and still fall within the scope of my specification and claims.

The operation of my dauber appears to be somewhat as follows: From the container on which it is mounted, paste may be extruded through the perforation 19 in the dauber. By pressing and rubbing the dauber against the shoe, the cylindrically extruded paste is flattened and entrained by the roughened dauber face 21 mainly as an adherent layer thereon, (see Fig. 5). In a minor degree, the paste is also encased in the roughening outwardly-open indentations or depressions 42 of said face (see Fig. 6). By manipulation of the dauber, said entrained paste is gradually spread upon the shoe, the adherent main portion of paste 48 being first dispensed. Finally the relatively small portion of paste 42 encased in the depressions 42 is nearly all worked out, resulting in what I term a free or non-wasteful dispensing of the paste. Then there ensues a noticeable increase in the frictional drag as the substantially unloaded dauber face, generally free of residual paste, is rubbed on the shoe, thereby indicating the necessity of extruding more paste for daubing an unfinished shoe.

Obvious to the user is the advantage of the roughened pliant compressible side wall cooperating with the face in forcing paste into the crevice between the sole and the upper of a shoe.

I have found that my dauber is very economical in its consumption of paste which appears accounted for by its ability to apply substantially all of said paste extruded effectively to the shoe. Only a negligible percentage of the extruded paste need generally remain adherent or encased in the shallow depressions of the dauber which in use is also generally non-penetrable.

The foregoing economical results are in contrast with the results produced by other daubers generally absorbent to, or penetrable by, the entrained paste, thereby, after each use leaving therewith a residuum of unavailable wasted paste.

Varying degrees of resilient pliancy and compressibility may be used in the dauber body. I have found that a sponge rubber, easily compressible between my thumb and forefinger to one-half of its free height (three-eighths inch thick sample) gives good results. I prefer that the dauber body in normal use be generally resistant to penetration by a paste, for which purpose I prefer that aforesaid

sponge-rubber be provided with a fine, small-celled characteristic. I do not want it to act as a sponge in the ordinary sense of having ability to draw in fluids. I do want a high degree of resilient compressibility, flexibility, and pliancy, adequate in relation to the aforesaid characteristics of the dauber face, and also in its adaptability in use to conform roughly to the irregular curved surfaces and crevices to be daubed thereby.

Other materials than rubber may be used in the flexible pliant dauber face. For instance, imitation rubber, skins, leathers and a compound used for making imitation leather fabric have given good results. Some of these I have found satisfactory, also substantially unaffected by the solvent turpentine (much used in shoe pastes), and in some cases substantially impervious thereto. Also, I have found serviceable in the dauber face, a very thin membranous material, similar to that used in sausage casing, smooth in texture and extremely pliant, and adapted to spreading paste when backed up very pliantly as by the fingers or by some sponge rubbers. Using rubber in the dauber face, I have sometimes found it advantageous to use cotton thread netting reinforcement underlying the face to guard against lateral expansion due to the action of turpentine on a rubber face. This mesh is useful also to prevent expansion in the cell-size of the dauber body adjacent, and thereby preventing it from becoming more penetrable to any paste which may get through any openings or ruptures in the face surface.

Sponge rubber generally serves well and cheaply for material in the resilient pliant flexible body 24, preferably substantially resistant to penetration by a paste in normal use. Synthetic or other rubber-like material may be more resistant to the action of some solvents used in shoe pastes, and with some pastes may be preferable (although more expensive).

In the drawings herewith, it is to be understood that the thickness and detail of the face and walls of the dauber are not necessarily proportioned to the dimensions of the dauber body, but are so drawn as to illustrate the positioning of said parts. In said drawings I have used cross-sectioning which is conventional for my preferred rubber and sponge rubber in certain parts, but it is to be understood that other material may be used alternatively.

Describing the face of the dauber, I have referred to roughening indentations or depressions therein adapted to the spreading of a paste. Conversely, the

face might be described as being roughened by closely spaced minute protrusions, in the spaces between which paste would tend to lodge. By either mode of description the effect described would be that of a generally roughened surface adapted to the purpose herein set forth.

In the specification and in the claims appended thereto, I generally refer to my device as a dauber, and to a shoe as representing the surface on which the paste is to be applied thereby. It is obvious that the device may be used for applying other than shoe polishing paste, and for applying said other paste on surfaces other than those of shoes. I wish it understood therefore that the term "dauber" applies to the device of the character set forth irrespective of where it may be suitably used, and that reference to application with a shoe is also to be considered as referring to any surface on which paste may be suitably spread by my device.

Any of the aforesaid substitutions or modifications, or others, which may provide for the characteristics specified, may be made in the article or device of my invention while still falling under the scope of my claims herewith appended.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A paste dispensing and spreading device comprising a dauber attached to a container and having soft pliant top and side surfaces with a backing of a resilient flexible material similar to live sponge rubber and also having a tubular passage through which paste is dispensed, the top surface and the wall around said passage being substantially non-penetrable to the paste.

2. A paste dispensing and spreading

device comprising a dauber having a body of resilient flexible material similar to live sponge rubber and of sufficient width to provide a peripheral applicator wall, said body having an applicator face formed by a flexible, substantially inelastic fabric attached to the top surface thereof and also having a longitudinal perforation therethrough opening into an outlet passage in a container to which the base end of said body is attached, the applicator face forming the top surface of the dauber being substantially non-penetrable to the paste.

3. A device according to claim 2, in which a non-penetrable lining is provided to form a wall for the tubular passage whereby access of paste into the body of the dauber is substantially prevented.

4. A device according to any one of the preceding claims, in which a flexible, inelastic, transversely disposed reinforcing material is embedded beneath and in proximity to the top surface of the dauber.

5. A device according to any one of the preceding claims, in which the exposed top and side surfaces of the dauber are made of a soft pliant roughened material.

6. A device according to any one of the preceding claims, in which the tubular passage in the dauber surrounds a projecting outlet tube on the container and preferably extends beyond the end of said tube.

7. The paste dispensing and spreading devices substantially as hereinbefore described with reference to the accompanying drawings and for the purpose specified.

Dated this 25th day of March, 1938.
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[This Drawing is a reproduction of the Original on a reduced scale.]

